

IN THE CLAIMS:

Please amend the claims as follows:

1. (original) A method of identifying an object or structured parts of an object in an image, the method comprising the steps of:

creating a set of templates, the set containing a template for each of a number of predetermined object parts and applying said template to an area of interest in an image where it is hypothesised that an object part is present;

analysing image pixels in the area of interest to determine the probability that it contains the object part;

applying other templates from the set of templates to other areas of interest in the image to determine the probability that said area of interest belongs to a corresponding object part and arranging the templates in a configuration;

calculating the likelihood that the configuration represents an object or structured parts of an object; and

calculating other configurations and comparing said configurations to determine the configuration that is most likely to represent an object or structured part of an object.

2. (original) A method as claimed in Claim 1 wherein, the probability that an area of interest contains an object part is calculated by calculating a transformation from the co-ordinates of a pixel in the area of interest to the template.

3. (currently amended) A method as claimed in Claim 1 ~~or Claim 2~~ wherein, analysing the area of interest further comprises identifying the dissimilarity between foreground and background of a transformed probabilistic region.

4. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein, analysing the area of interest further comprises calculating a likelihood ratio based on a determination of the dissimilarity between foreground and background features of a transformed template.

5. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein, the templates are applied by aligning their centres, orientations in 2D or 3D and scales to the area of interest on the image.

6. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein the template is a probabilistic region mask in which values indicate a probability of finding a pixel corresponding to an object part.

7. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein, the probabilistic region mask is estimated by segmentation of training images.

8. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein, the image is an unconstrained scene.

9. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein, the step of calculating the likelihood that the configuration represents an object or a structured part of an object comprises calculating a likelihood ratio for each object part and calculating the product of said likelihood ratios.

10. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein, the step of calculating the likelihood that the configuration represents an object comprises determining the spatial relationship of object part templates.

11. A method as claimed in Claim 10 wherein the step of determining the spatial relationship of the object part templates comprises analysing the configuration to identify common boundaries between pairs of object part templates.

12. A method as claimed in Claim 11 wherein the step of determining the spatial relationship of the object part templates requires identification of object parts having similar characteristics and defining these as a sub-set of the object part templates.

13. (currently amended) A method as claimed in Claim 12 ~~any preceding claim~~, wherein the step of calculating the likelihood that the configuration represents an object or structured part of an object comprises calculating a link value for object parts which are physically connected.

14. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein the step of comparing said configurations comprises iteratively combining the object parts and predicting larger configurations of body parts.

15. (currently amended) A method as claimed in Claim 1 ~~any preceding claim~~ wherein the object is a human or animal body.

16. (original) A system for identifying an object or structured parts of an object in an image, the system comprising:

a set of templates, the set containing a template for each of a number of predetermined object parts

applicable to an area of interest in an image where it is hypothesised that an object part is present;

analysis means for determining the probability that the area of interest contains the object part;

configuring means capable of arranging the applied templates in a configuration;

calculating means to calculate the likelihood that the configuration represents an object or structured parts of an object for a plurality of configurations; and

comparison means to compare configurations so as to determine the configuration that is most likely to represent an object or structured part of an object.

17. (original) A system as claimed in Claim 16 wherein, the system further comprises imaging means capable of providing an image for analysis.

18. (original) A system as claimed in claim 17 wherein the imaging means is a stills camera or a video camera.

19. (currently amended) A system as claimed in Claims ~~16 to~~ 18 wherein, the analysis means is provided with means for identifying the dissimilarity between foreground and background of a transformed probabilistic region.

20. (currently amended) A system as claimed in Claims ~~16 to~~ 19 wherein, the analysis means calculates the probability that an area of interest contains an object part by calculating a transformation from the co-ordinates of a pixel in the area of interest to the template.

21. (currently amended) A system method as claimed in Claim 16 ~~any of Claims 16 to 20~~ wherein, the analysis means calculates a likelihood ratio based on a determination of the dissimilarity between foreground and background features of a transformed template.

22. (currently amended) A system as claimed in Claim 16 ~~Claims 16 to 21~~ wherein, the templates are applied by aligning their centres, orientations (in 2D or 3D) and scales to the area of interest on the image.

23. (currently amended) A system as claimed in Claim 16 ~~any of Claims 16 to 22~~ wherein the template is a probabilistic region mask in which values indicate a probability of finding a pixel corresponding to the body part.

24. (currently amended) A system as claimed in Claim 16 ~~any of Claims 16 to 22~~ wherein, the probabilistic region mask is estimated by segmentation of training images.

25. (currently amended) A system as claimed in Claim 16 ~~any of Claims 16 to 24~~ wherein, the image is an unconstrained scene.

26. (currently amended) A system as claimed in Claim 16 ~~any of Claims 16 to 25~~ wherein, the calculating means calculates a likelihood ratio for each object part and calculating the product of said likelihood ratios.

27. (original) A system as claimed in Claim 26 wherein, the likelihood that the configuration represents an object comprises determining the spatial relationship of object part templates.

28. (original) A system as claimed in Claim 27 wherein the spatial relationship of the object part templates is calculated by analysing the configuration to identify common boundaries between pairs of object part templates.

29. (original) A system as claimed in Claim 28 wherein the spatial relationship of the object part templates is determined by identifying object parts having similar characteristics and defining these as a sub-set of the object part templates.

30. (currently amended) A system as claimed in Claim 28 ~~any preceding claim~~, wherein the calculating means is capable of calculating a link value for object parts which are physically connected.

Claim 31. (cancelled)

32. (currently amended) A system as claimed in Claim 16 ~~any of claims 16 to 31~~ wherein the calculating means is capable of iteratively combining the object parts in order to predict larger configurations of body parts.

Claim 33. (cancelled)

34. (currently amended) A computer program comprising program instructions for causing a computer to perform the method of ~~any of Claims 1 to 15~~

creating a set of templates, the set containing a template for each of a number of predetermined object parts and applying said template to an area of interest in an image where it is hypothesised that an object part is present;

analysing image pixels in the area of interest to determine the probability that it contains the object part;

applying other templates from the set of templates to other areas of interest in the image to determine the probability that said area of interest belongs to a corresponding object part and arranging the templates in a configuration;

calculating the likelihood that the configuration represents an object or structured parts of an object; and

calculating other configurations and comparing said configurations to determine the configuration that is most likely to represent an object or structured part of an object.

35. (original) A computer program as claimed in claim 34 wherein the computer program is embodied on a computer readable medium.

Claim 36. (cancelled)

37. (currently amended) A markerless motion capture system comprising imaging means and a system for identifying an object or structured parts of an object in an image ~~as claimed in any of Claims 16 to 33~~ wherein the system includes:

a set of templates, the set containing a template for each of a number of predetermined object parts

applicable to an area of interest in an image where it is hypothesised that an object part is present;

analysis means for determining the probability that the area of interest contains the object part;

configuring means capable of arranging the applied templates in a configuration;

calculating means to calculate the likelihood that the configuration represents an object or structured parts of an object for a plurality of configurations; and

comparison means to compare configurations so as to determine the configuration that is most likely to represent an object or structured part of an object.